

# METHOD FOR PATTERNING A SEMICONDUCTOR REGION

## Abstract

A method is provided for patterning a semiconductor region, which can be heavily doped. A patterned mask is provided above the semiconductor region. A portion of the semiconductor region exposed by the patterned mask is etched in an environment including a polymerizing fluorocarbon, e.g., a chlorine-free fluorocarbon having a high ratio of carbon to fluorine atoms, and at least one non-polymerizing substance selected from the group consisting of non-polymerizing fluorocarbons, e.g. those having a low ratio of carbon to fluorine atoms, and hydrogenated fluorocarbons. The method preferably passivates the sidewalls of the patterned semiconductor region, such that a lower region of semiconductor material below the patterned region can be directionally etched without eroding the thus passivated patterned region.